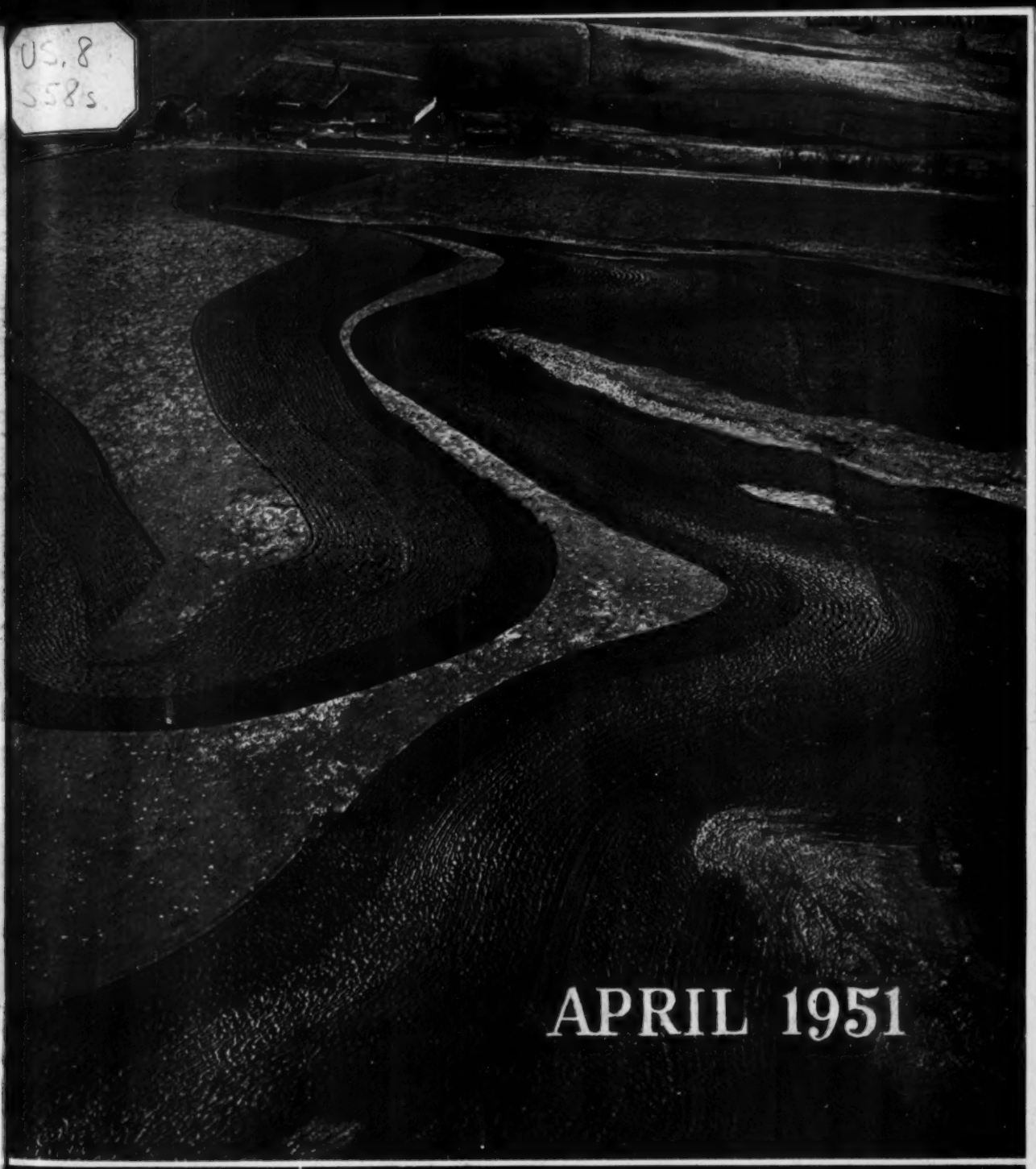

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CHARLES F. BRANNAN
SECRETARY OF AGRICULTURE

HUGH H. BENNETT
CHIEF, SOIL CONSERVATION SERVICE

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WASHINGTON, D. C.

☆ THIS MONTH ☆

WELLINGTON BRINK
Editor
Art Work by
W. HOWARD MARTIN

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A NEW WORK FOR THE CHURCH.—The work unit conservationist in the Morgan County (Ill.) Soil Conservation District recently received the following letter:

Dear Mr. Pierce:

I have assumed the pastoral care of Grace Chapel Methodist Church in Township 16. I am wondering if there isn't something we can do on a neighborhood basis to further your program. I hope to use the church as a center and stimulus for such work. Please let me know if there is anything we can do.

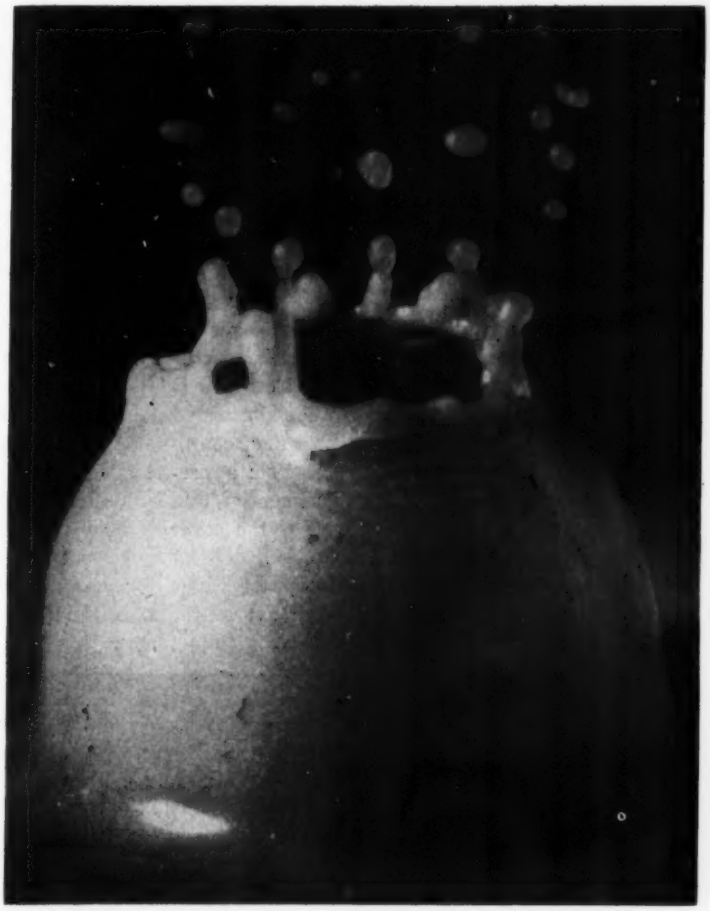
Sincerely
Robert Pitch

FRONT COVER.—Don Ultang, photographer for the *Des Moines* (Iowa) *Register* and *Tribune*, provides this excellent picture of contour strips being plowed in a pasture on the farm of Ralph Ogan, near Searsboro, Iowa. Besides being a striking picture of this operation, the photograph also shows many of the problems that arise in this work, and so is good from the how-to-do-it standpoint. It shows "skipping" of waterways, how irregular-width strips are handled, and how turn lands are left for easier handling of large machinery.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

BOMB SHELTERS FOR THE LAND!

By BEN OSBORN



Explosive effect of raindrop striking flooded soil.

TEXAS is looking to the defense of its range lands against bombardment by raindrops. Results of a recent survey of the soil-protective values of range cover provide new information as to requirements for sheltering grazing lands.

From the conservationist's viewpoint, each little drop that strikes bare earth splatters and blasts away at the soil like a miniature bomb. And there are millions upon millions of drops in a single rain. Their total effect, if uncontrolled, can lead to serious soil damage. "Bomb shelters" for the land are as necessary a part of our national defense as bomb shelters for city populations.

Plant cover is the land's principal shield against the raindrop's blasting action. On range lands this means grass and the litter that remains from the previous year's growth. But how much grass cover is a safe minimum for soil protection? How effective are range covers as they exist under current ranching practices?

For the past 2 years soil conservationists in the Western Gulf Region have been testing different kinds and amounts of cover in principal range areas. A field party was equipped with a "raindrop applicator" capable of bombarding the ground with a force similar to the beating of the hardest rains. They traveled the highways and the cattle and sheep trails of western Texas at all seasons. They measured soil splash and water losses from typical examples of major range soils and calculated the relative efficiency of the cover.

Note.—The author is a soil conservationist, Soil Conservation Service, San Angelo, Tex., and was leader of the field party making range-cover evaluations with the raindrop applicator. The operations and research branches of the Service cooperated in the work under the direction of Louis P. Merrill, regional director, Fort Worth, and Charles J. Whitfield, project supervisor, Amarillo Conservation Experiment Station, Amarillo.

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The poorest was tested along with the best, the overgrazed compared with the protected.

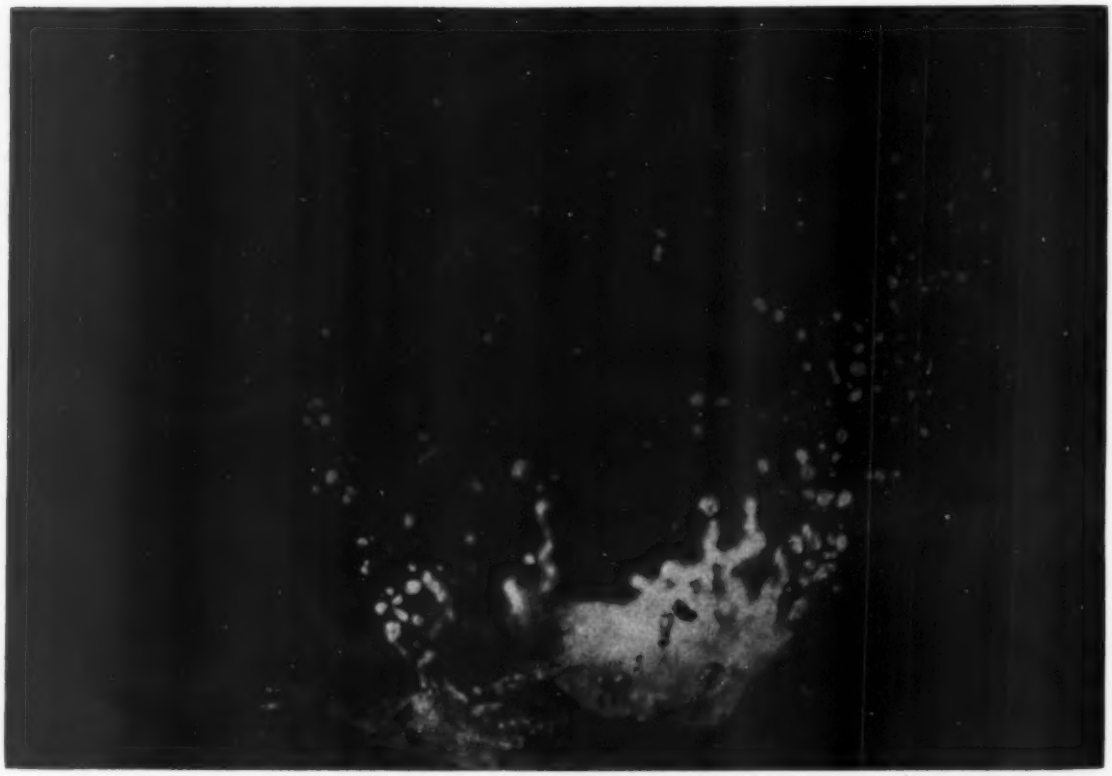
Results from 163 plots, representing 12 major range sites in 7 problem areas have been summarized. They show at once the inadequacies and the strength of Texas' grazing land defenses. Under the pelting of the test application of water, bare and poorly covered areas suffered from excessive soil splash and high runoff. Other plots with adequate cover on the same soils suffered negligible losses.

The exacting tests demonstrated that cover on the land will prevent one important initial factor in soil erosion—dispersal of the particles by raindrop impact. They showed every range site tested was capable of growing under natural field conditions sufficient cover to protect itself from appreciable damage by raindrop bombardment. From these results emerges a new picture of the cover requirements of range land.

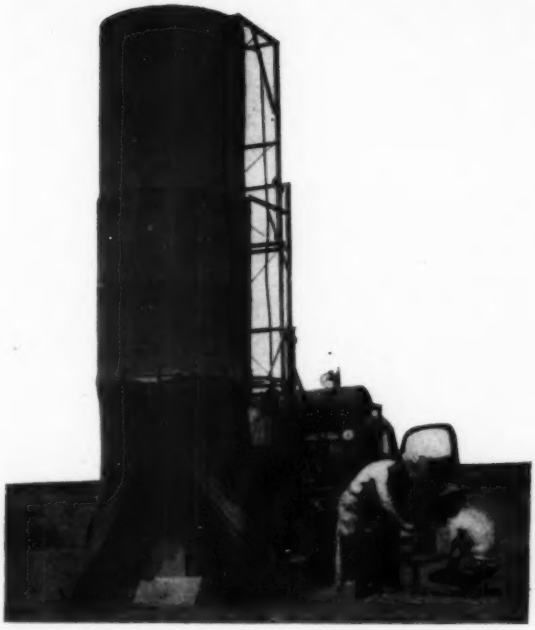
To get at the problem where it exists on range lands, the apparatus had to be taken out of the laboratory into the hills and valleys and onto the plains of remote ranches. This the Texas conservationists have done. They have devised a mobile unit mounted on a truck which can be taken practically anywhere that such a vehicle can be driven.

The equipment to apply raindrops of controlled size and velocity to range plots was tested at the Amarillo Conservation Experiment Station. Though unwieldy and laborious to operate, this equipment showed that protective values of range cover could be measured under field conditions and indicated the important results to be obtained. C. J. Whitfield, technical adviser, and B. W. Allred, regional range conservationist, planned and organized a field survey of range-cover effectiveness.

From this beginning Paul M. Browning, equipment engineer of the Western Gulf regional staff, designed the current model of raindrop applicator. This consists of a set of pressure tanks mounted on a truck, with a small gasoline motor and compressor to force water through a hose to the top of an enclosed tower. Here it is sprayed through a



The mud flies under impact of raindrop.



Mobile raindrop applicator in operation on western Texas range.

nozzle onto a circular drip screen where the drops form on the ends of short pieces of yarn and fall to the ground 14 feet below. The size of the yarn drippers controls the size of the drops. The drop size and distance of fall determine the velocity or force of impact on the soil.

Two inches of water applied through this apparatus in 20 minutes strikes the ground with sufficient force to dislodge soil at a rate comparable to natural rainfall. The soil splash measured in the field is rated against a standard material of uniform structure—a clean fine sand. Different soils vary in ease of dispersal. Samples from each plot are compared with the sand standard and results of the tests are adjusted according to their relative ratings.

By applying the same amount of water to a series of plots on the same soil, having different kinds or amounts of cover, and comparing the amounts of soil splash and water lost, the effects of the cover can be evaluated. After adjusting for variations in the soil, effectiveness of the cover can be expressed as the percentage by which it reduces splash from what would occur on bare soil. Comparison of the water caught from the plot with the amount applied reveals the extent to which rainfall is absorbed under different conditions of cover.

Soil splash from bare range soils in the tests varied from 2 to 20 times as much from some soils as from others, due to differences in soil type and physical and biological conditions of the soils. Despite the wide range in performance of the soils, examples of cover were found on every site which were 98 percent to 100 percent effective in preventing soil splash.

Through the wide range of covers tested, the effectiveness of the cover in reducing splash was consistently proportional to its amount, up to the point where complete protection was provided. Beyond that point additional cover, of course, could have no effect.

Amount of cover on the ground was more important than kind in protecting soil from raindrop impact. Although there was some variation between plants of different growth habits, these differences were mainly due to different capacities to produce volume of cover.

Soil-protective value depends upon both the weight of the cover and the completeness of the coverage; i.e., upon the mass available to absorb the impact force of the rain and the thoroughness with which the soil surface is protected from direct impact of the drops. However, since these two properties of cover—weight and density—are closely associated, effectiveness was found to be well correlated with measurements of either. Since weight of cover can be determined directly by clipping and weighing, or can be estimated with reasonable accuracy, results of the splash tests were summarized in a curve showing the relationship between effectiveness and weight of cover.

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Telescoping tower facilities moving equipment from plot to plot.

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PRESS AND RADIO JOIN FORCES IN SUPPORT OF CONTEST

By HUGH H. BENNETT

IN 1950, for the third straight year, the Denver Post and radio station KLZ awarded $2,500 in cash prizes, plaques, and scrolls for outstanding soil and water conservation accomplishments in Colorado. The five top districts won $500 and plaques, while the three individual farmers or ranchers representing the winning districts received scrolls.

The unusual aspect, to me, is the fact that two organizations which might be expected to be keen competitors have found it practical and worth while to cooperate in this enterprise for the general welfare of the State.

Rules of the contest, as worked out by representatives of the newspaper, the radio station, and the Soil Conservation Service, are different from anything I have heard of anywhere else.

First, activities of the district boards of supervisors are made all-important; supervisors must assume and maintain a position of direction and leadership in order to be eligible to win. This undoubtedly is the most important point of the contest. Through stressing activities of the district supervisors, the contest has been brought to the attention of all landowners and operators in the State. These custodians of the soil are coming to realize that they must exercise their rights as individual citizens if they are to have an effectively operating district.

Second in importance is the quality, quantity, and completeness of work done on the three farms or ranches selected by the supervisors to represent their district in the contest. In this connection the effectiveness of the conservation program, the interest of the individual, and what he has accomplished are considered in the judging. It is interesting, to note that consideration is not given to the actual quantity of work done, but rather to the resources available to the individual and how much he has accomplished with them.

For example, in the first year of the contest in 1948, there was a winner in the San Juan district who spent not more than $50 to $75 in getting the conservation program on his land. He had been so short of cash that he had done all the work by himself with teams, scrapers, slips, and whatever else was available to him. Nevertheless, this farmer had used everything available to him in getting conservation practices on his land and was adjudged a winner.

The Denver Post-KLZ contest divides the State into various regions. There are two regions in the Platte Valley, three in the Arkansas, one in the San Juan Basin, one in the Rio Grande Basin, one on the Uncompahgre-Gunnison Drainage in the vicinity of Montrose, one on the Colorado River in the vicinity of Grand Junction, and one on the White-Yampa River in the vicinity of Craig.

Each district desiring to enter the contest sends its entry to the Denver Post or to Station KLZ, along with the names of the three farmers or ranchers who will represent the district. After the contest closes early in July, the judges determine the winners in each region. Regional judging teams are composed of a district conservationist, a banker, a director of the State Association of Soil Conservation Districts, and a county agricultural agent. Exactly the same judging system is used in the regional and final judgings.

When the regional winners are determined, the State judges then select the five top districts. The State judging team is made up of an SCS State conservationist from outside Colorado, the president of the State Association of Soil Conservation Districts, and a representative of the Extension Service at the State level. These judges are accompanied by representatives of the Denver Post and KLZ, who take pictures and prepare news articles and radio programs for publicity continuing throughout the contest judging.

In addition to the benefits accruing to the actual participants, the contest points up the effectiveness of districts and what they can do toward using both public and private facilities to conserve the natural resources of the State. Businessmen have definitely been brought into the picture. This is

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Four hundred farmers and ranchers listen in shade of live oaks to talks on range conservation.

CROWDS ARE MADE UP OF CLUSTERS

By HOWARD W. REAM and G. M. MORRIS

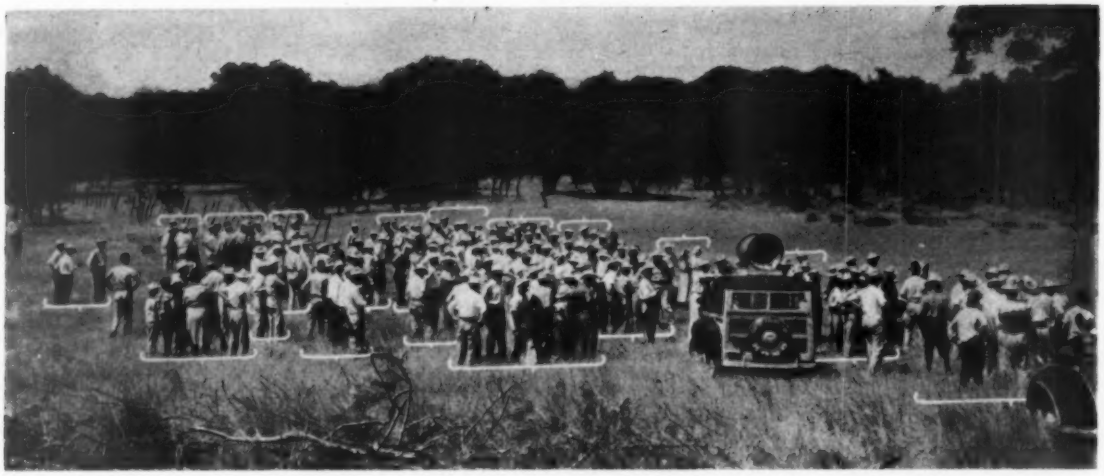
HAVE you ever noticed how people cluster in small groups before or after a meeting or whenever there is a break in a discussion? Undoubtedly you have, but perhaps you have thought little about the significance of these little natural groups.

Recently E. J. Hughes, assistant State conservationist in Texas, made an observation that attaches considerable importance to what takes place in these little clusters of people. This observation was a result of some pictures taken at a district-sponsored meeting on the Arthur Blaschke ranch. About 400 ranchers and farmers from several soil conservation districts attended.

The meeting started with a general discussion of range problems and the need for proper grazing management. A tour was then made over the ranch to study the vegetation on overgrazed sites as contrasted with others well managed. Pictures were taken at each of the stops. After the pictures were developed, Hughes noticed how the people collected in small groups at each new location. Some of the same people bunched together each time. Closer examination revealed that in each of these little clusters were folks who belonged to the same neighbor group. These neighbor groups had previously been located and had worked together on soil conservation activities.

The term "neighbor groups" may be new to you. It is one which the Soil Conservation Service has used to designate the smallest natural grouping of people next to the family. It is made up of families bound together by certain customs, traditions, religious beliefs, national background, likes, interests, and needs. Each family is to some extent influenced by other families. They often visit each other, help each other in times of sickness and distress, borrow and lend farm equipment and household items, and sometimes exchange labor and share the ownership of machinery. They often

Note.—The authors are, respectively, soil conservationist, Soil Conservation Service, Washington, D. C., and chief, regional project plans division, Soil Conservation Service, Fort Worth, Tex.



The gathering moves to another location. The clusters—natural neighbor groups—are shown here in brackets.

link up for social and recreational activities. The neighbor group, then, is a group characterized by the many friendly, intimate, and personal contacts. It is the group in which the folks look upon each other as "good neighbors." These groups are small, usually running from 5 to 12 families, seldom less than 5, rarely more than 12.

Neighbor groups are not to be confused with "neighborhoods" or "communities." These are generally of larger size, and in them people are less likely to know each other personally.

Because of their peculiar characteristics, neighbor groups afford the most logical and natural way in which to work with people in soil conservation. For the most part their meetings are informal. You, doubtless, have observed such informal gatherings on street corners, at auctions, at sales, at the crossroads store. In such huddles, people discuss things more freely and participate more actively in projects of mutual interest than at large meetings where they don't know most of

(Continued on page 212)

Here, at a third stop, made to study a well-managed range site, the groupings are still more sharply differentiated. The lone figure in foreground either has not found his usual companions or is an "outgrouper."

GETTING READY TO TAKE OVER

By JOSEPH COOK

THERE'S a rapidly growing group of boys in Cayuga County, N. Y., who can talk about farm plans and conservation practices on even terms with the professional. Sixteen youngsters who belong to the recently organized Port Byron and Union Springs FFA-4H Soil Conservation Clubs have demonstrated they know and also practice what they're talking about.

For their progress in establishing soil and water conservation measures on their parents' farms last year, two of the boys, Carl Pearce and John Young, won county championships. Young, "B" Division (under age 15) winner, went on to take the New York State 4-H contest crown—and a $25 U. S. Savings Bond.

The idea of soil conservation clubs for farm boys popped out during a conference between the work unit man of the Cayuga County Soil Conservation District and Ed Winchester, county 4-H agent. It seemed worth trying out on Carl Stevens and Allan Shotwell, local vo-ag teachers. They immediately saw the project's value and started integrating it with the school work at Union Springs and Port Byron.

Each boy prepared a map of his home farm showing how it was actually being used at the moment. Then, with a land-use capability map supplied by the local work unit conservationist, the boys drew maps showing how they thought the farm should be worked to conserve soil and water. They were encouraged to seek advice from their parents, their FFA and 4-H advisers, and the SCS man. They made final decisions themselves.

Complete establishment of three approved conservation practices was the minimum requirement for youngsters who wanted to qualify for a finished project.

As a result, Cayuga County farm land took on a new, improved look in many places. The boys' enthusiastic and creditable efforts attracted the attention of the local soil conservation district directors. Farm banking institutions, broadcasters, and prominent conservationists offered encouragement.

At the end of months of planning and hard work on practices such as contour strip cropping, diversion ditching, and terracing, the boys had plenty to show. Their parents, advisers, and friends had reason to be proud of them. They staged a banquet to honor charter members of the first FFA-4H Soil Conservation Club in the Empire State.

Prominent in paying tribute to the young conservation farmers at the festivities were Ed Winchester, county 4-H agent; Bob Doubleday, well-known farm broadcaster; Irving B. Stafford, State conservationist; Edward Ramsey, farm-banking representative; and Hugh Wilson, extension conservationist, jointly employed by Cornell University and the Soil Conservation Service.

All who participated in the project were presented Certificates of Merit by Joseph Cook, Cayuga County work unit conservationist. Members of the Port Byron club, guided by Carl Stevens, vo-ag teacher, were Guy Ball, Wesley Bobbett, Fred Edmunds, Richard Dutcher, George Mills, Franklin Roberts, Earl Snyder, and Marvin Wilson. The Union Springs club, led by Allan Shotwell, was composed of Robert Colbert, Roy Gans, John Girndt, Carl Pearce, Robert Sanders, Julian Stachniewicz, Richard Thurston, and John Young.

Both clubs have already started on this year's program. And the idea has spread to nearby Weedsport where Howard Finley, vo-ag teacher, intends to launch a similar club.

Those who have seen what the Cayuga County FFA-4H junior conservationists have done, hope the idea will keep right on spreading. It's good for the land—and for the boys.

Note.—The author is work unit conservationist, Soil Conservation Service, Cayuga County, N. Y.

BACK TO SOIL THANKSGIVING.—A Thanksgiving program, based on soil and soil products, was presented last November by churches of De Funiak Springs, Fla. State and Federal agencies took part. An unusual feature was the presentation of a tray of soil in which various seeds were planted. Products of the soil of Choctawhatchee River district were displayed.

THE DISTRICTS AND NATIONAL DEFENSE

By SENATOR ALLEN J. ELLENDER

The following address by Allen J. Ellender was recorded in Washington as a message to soil conservation district supervisors everywhere, and was first delivered by transcription at the annual convention of the Louisiana Association of Soil Conservation Districts, Baton Rouge, January 27, 1951.

I REGRET very much that I am unable to speak to you in person. I would like to be with you, but, unfortunately, the press of business in the United States Senate and the Senate Agriculture Committee, of which I am chairman, prevents my personal appearance.

I know of no group who can do more to help our fellow farmers and ranchers gear their operations for an all-out defense effort than you and the other supervisors of our Nation's more than 2,300 soil conservation districts. In many ways your position is unique for these times. You are not on anybody's payroll. In most cases you are meeting your farmer-charged responsibilities at personal financial sacrifice. There is a reward, however, for what you are doing. It is the satisfaction of knowing that you and the other farmers of your soil conservation districts have organized freely and voluntarily to protect and to use efficiently your land and water resources. The benefits of this work do not stop with the individual farmer and rancher doing it, but extend to all of our people. In doing this work through your soil conservation districts you are strengthening the democratic principles of self-government that made our Nation great.

Your work is an example of democracy and freedom in action. Our Nation today is mobilizing its resources to protect and defend that freedom against the threat of destruction by communist forces throughout the world. Our Nation today is mobilizing to make sure it can continue to guarantee you the privilege and right of representative self-government—the very form, spirit, and practice of soil conservation districts.

Hon. Allen J. Ellender, U. S. Senator from Louisiana.

Although farming and self-government are just two items in the great jigsaw puzzle of our national affairs, they are two of the key pieces in this complete puzzle. And that is what I want to discuss with you today—the role of soil conservation districts in mobilization.

As we go into what might well be World War III, we can be thankful that our bins and cribs and warehouses are full. But in spite of this huge reservoir of food, American agriculture will have to expand and buckle down to work as never before. The American farmer will have to redouble his efforts, tilling his land and harvesting his crops with less help, fewer tools, and less fertilizer and insecticides. It is only by a further increase in our agricultural efficiency that we will be able to produce sufficient food and fiber for our needs.

Never has there been a greater need for agricultural efficiency. The efficiency of American farm-

ing must rise to meet the challenge of this period of full mobilization, and one of the principal bases for agricultural efficiency is conservation farming, the kind of conservation farming that our soil conservation districts are helping our landholders to practice.

I know of no better, quicker, and surer way for a farmer to obtain the basic tools for efficiency in farming than for him to get in touch with the supervisors of his local soil conservation district and use the help his district can give him.

I personally know what this district help means. I have availed myself of this help from my local soil conservation district. The district supervisors, along with Soil Conservation Service technicians, helped me plan the best use I could make of each acre of my land. They came out to my farm and made an inventory of my land to determine the best use I could make of each acre—an inventory based on careful measurements of the slope, degree of erosion, kind of soil, land use, and other important physical features.

With this information and with the help of the soil conservation technicians, I was then able to decide how I was going to use each acre to the best advantage, and how to provide the soil and water conserving measures that were needed for sustained, efficient production. I was also advised of the most efficient method to drain the water-soaked, unproductive acres of my land, all of which became part of my long-range farm plan.

Needless to say, this was to me a down-to-earth example of the technical conservation assistance our Nation has to offer its farmers. And this help was available to me as it is to any other landholder through a program organized and managed by fellow and neighboring farmers.

I have always believed that we as a Nation cannot devote too much support to promoting basic conservation practices on our farms and ranches. This is one of the most vital tools we need for efficient production—production for either war or peace. We justifiably have placed great emphasis on the many phases of farm credit, education, rural electrification, price supports, and other farm programs which have helped to open a new era of better life for our farmers and ranchers. But as a Nation we have not directed sufficient effort toward conservation on our farms and ranches. In our soil conservation districts, which now cover more than 80 percent of our farms, we have the framework to get this conservation job done.

On one hand, it is encouraging to know that about one-fifth of this basic conservation job has been done, but on the other hand we cannot help but view with considerable concern the remaining job to be done as we mobilize our Nation for any eventuality. We must ask ourselves what must we do to provide all farmers and ranchers with the needed basic conservation information so they too can make the best use of their land and know the soil- and water-conserving practices it needs.

Conservation farming takes on even greater importance in wartime than in peace. It definitely is needed. No longer should soil and water conservation be looked upon as a luxury or as only a civic duty. It is an economic and a national defense necessity—and it will be more so as we get deeper into mobilization and as efficiency in agricultural production becomes of even greater importance.

We know that the kind of conservation farming sponsored through our soil conservation districts does increase per-acre production considerably. In addition, there are extensive savings in fertilizer, seeds, machinery, fuel, and manpower. These savings are important, and especially so during a war period when manpower and materials become scarce. Scientifically planned and applied conservation farming reduces the loss of crop producing topsoil, and the loss of fertilizer and seed which are carried away in uncontrolled runoff. We also know that there is less breakage and wear on farm machinery and equipment on those farms operated under sound conservation practices. There is also lower fuel consumption to operate that machinery. We know, too, that this thorough-type conservation farming in the upper watersheds of our great rivers helps to reduce destructive runoff, flooding, and silting of reservoirs which supply water and power—likewise wartime essentials.

Yet, even with all of these benefits known, there will be some who will look upon conservation farming as a peacetime activity—having no place in a war effort. Unknowingly, those who have such thoughts are supporting the downfall of our agriculture and of our Nation.

We have the important job of letting those people know the truth. They must learn that our Nation is no stronger than our ability to produce food and fiber at a minimum use of land, manpower, and

(Continued on page 212)

New Plants for the New Agriculture

Search for plants: Left, Vigorous strain of native big bluegrass from Whitman County, Wash. Right, Blanket indigo, high-value legume accidentally found beside highway in Marion County, Fl

By FRANKLIN J. CRIDER

Prefatory Note.—The observational method of plant study as applied to the development of soil-conserving plants and techniques represents the first organized, systematic effort in this country to bring together, to study, and to evaluate plants for the specific purpose of soil and water conservation. The method was born of necessity. Dr. Franklin J. Crider took the lead in its formulation.

When soil and water conservation as a national program was inaugurated, the importance of plants as basic conservation tools—thick-growing plants, in particular—came to the forefront. There existed, however, the problem of establishing vegetative cover on millions of acres of seriously eroding farm and range lands.

During this early period Dr. Crider, as regional leader of nursery activities, had the important task of providing suitable planting materials for conservation use in the Southwest. Undoubtedly, the adverse environmental conditions of this section as affecting plant adaptation, and ease of establishment, stimulated his efforts in the direction of the nursery observational method of plant evaluation. On being transferred to the Washington office in 1936 as head of the nursery division, Dr. Crider was ready with a plan which won instant approval and enthusiastic support as an integral part of Service activities.

—HUGH BENNETT.

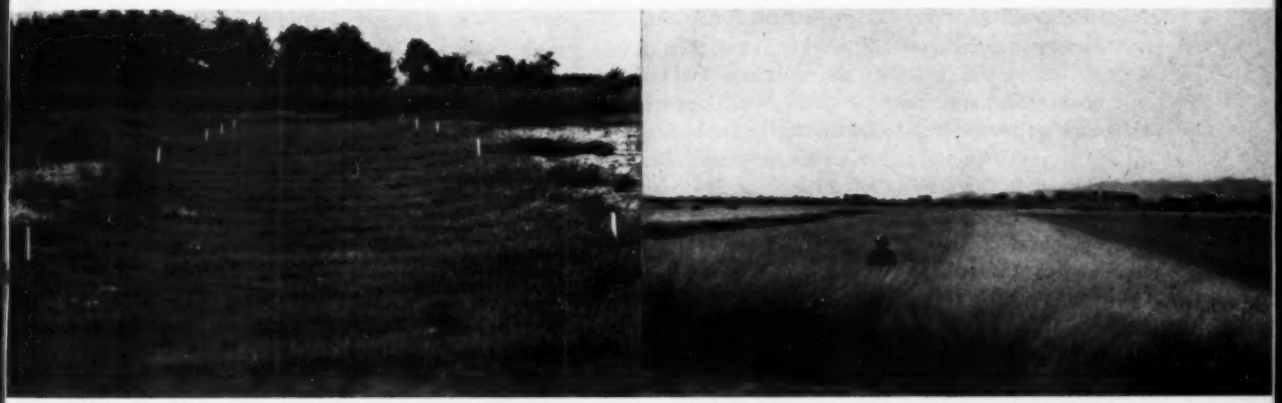
IT IS the function of Soil Conservation Service nurseries to provide the highest quality planting materials for soil and water conservation. New and improved varieties of plants are brought into conservation use through a series of evaluation tests known as nursery observational studies.

Note.—The author is in charge of national observational nursery project, Soil Conservation Service, Beltsville, Md.

Initial observational studies at Chapel Hill, N. C., nursery. Rows of individual accessions illustrate first testing stage of plants for soil and water conservation.

Strains of well-known species are grown in groups for comparison. Here six different strains of Canada wildrye are studied at the Pullman, Wash., nursery.

Grasses and legumes are advanced to more realistic field-plot testing. Here are Cucamonga brome and Wimmera ryegrass at San Fernando, Calif.



The nurseries also test plants for conservation use. Here six grasses are shown under comparative test as waterway covering at the national observation nursery, Beltsville, Md.

Promising accessions are grown in sufficient quantity to determine production methods and provide materials for subsequent field trials. Left, Fyngras; right, Boer lovegrass—Tucson, Ariz., nursery.

Final testing: field-scale trial of King Ranch bluestem on L. A. Nordon Ranch, Kendall County, Tex., 2 years after rough range was cleared of scrubby tree growth and saddle-horn seeded.

Foundation seed-production field of selected strain of blue wildrye—the ultimate goal of the observational studies. An authentic source of best conservation plants for quantity seed-production by farmers.

Designed to meet the specific requirements of the Soil Conservation Service, nursery observational studies entail constant search for species and variants of potential outstanding conservation values and testing them by comparative observation. As an intimate part of field operations, they ferret out and bring to light plant materials which possess the qualities of usefulness desired. Characteristically, the tests begin on the nursery and end out in the field where the farmer himself participates in the evaluation.

Nursery observational studies are conducted by the nursery division of the Soil Conservation Service through 25 regional nursery centers facilitated by the national observational nursery project at the Agricultural Research Center, Beltsville, Md. The work is closely coordinated with that of the other technical divisions of the Service and handled in collaboration with other Federal and State agencies engaged in related work. The key to its success lies in the fact that the technical facilities and cooperative relationships of the Soil Conservation Service are such as to facilitate the rapid transition of a promising accession or technique from initial trial to farmer-use.

The observational process begins before an accession is planted. Effort is made to bring under observation plants of potential soil and moisture conservation values, combined with other important economic uses, such as forage, farm woodland, and wildlife development.

Native vegetation has offered a ready, virtually untapped source of outstanding conservation plant materials. Nursery technicians, therefore, constantly keep on the lookout for wild species and variants which, because of some outstanding quality such as better ground coverage, greater soil-building capacity, or heavier seed production, are worthy of being brought into the nursery for observation. Another fruitful source of high-quality plant materials is cooperating Federal and State research stations from which strain selections resulting from plant breeding are obtained. Introduced species acquired by exchange also constantly are being incorporated into our trials.

As the first observational step, newly assembled plant materials are grown on the nursery in such manner that the characteristics and performance of the plant as an individual can best be determined. In most cases, especially with grasses and legumes, cultivated rows have proved most satisfactory. Also it has been found that evaluation is facilitated by grouping the various species and strains according to similarity of composition, season of growth, or probable conservation use, with previously accepted standard varieties for comparison. After from one to several growing seasons the accessions are preliminarily evaluated.

Promising selections now are initially increased and subjected to such other on-the-nursery tests as may serve to further substantiate their superiority and applicability to specific conservation jobs. The terrain of a nursery often is representative of a fairly large section and as such composes several land-capability classes. Some of the lands are good and others poor, some level and others rolling and erosive, some irrigated and others that cannot be watered. These varied conditions provide ready means not only for observing climatic and soil influence and vegetative differentiation but make it possible to secure essential information on such problems as site adaptation, stand establishment, and soil building. It is not uncommon, therefore, to see waterways lined with several different grasses to test their erosion resistance, hillsides planted to various ground covers to compare their soil-holding and desilting capacities, plot plantings of grasses and legumes to determine their soil-building qualities and how they get along together, shelter strips of wind-resistant tree types, and wildlife borders of various shrub combinations.

The next stage of the observational procedure is a system of field trials which supplements the on-the-nursery tests. Located in representative farm or conservation problem areas, these trials are designed especially to further determine environmental limitations and erosion-control efficiency along with conservation crop values. The tests are simple and practical and vary in kind and design according to conservation objective, land-capability class, and the prevailing cropping system. Based upon the results of preliminary evaluations, they include only outstanding selections which appear likely to succeed in the particular farming area.

Further, a species or strain which continues to show distinctive superiority is placed under individual farm field-scale trial. This is accomplished by utilizing representative farms within the respective conservation problem areas. Here the selection is grown by the same methods and in close proximity to similar commonly used varieties.

All individual farm trials are designed to fit into the regular farm plans and work programs of the respective soil conservation districts. Planned by

the nursery and other directly interested technicians, they are participated in as well by the district conservationist and work unit conservationist.

Complete evaluation of a new species or variety sometimes is not possible without critical research measurement. This is provided for through cooperative understandings with the State agricultural experiment stations and the appropriate Federal research divisions who usually undertake the solution of a pertinent problem concurrently with our more-advanced stages of observational testing. Thus a newly recommended species or variety represents the combined judgment of all interested State and Federal agencies along with that of the ultimate user, the farmer himself.

Coordinated with plant evaluation as such is the development of improved techniques as relate to the incorporation of a new or re-evaluated conservaton plant into farm or ranch operations. Designed to facilitate the application of selected species and strains to soil and moisture conservation practices, this phase of the work covers reproduction and cultural techniques and methods. More often the working out of successful procedures for propagating, growing, and handling a particular plant is as essential as determining its vegetative and adaptive qualities.

Thousands of potentially useful soil-conserving accessions have been processed in this manner. Outstanding in this particular are the good native grasses collected and brought into general farm use —species and strains not heretofore domesticated.

When soil conservationists in this country in the early thirties tackled the big, complex job of restoring vegetative cover to eroding farm and range lands, they were not long in learning the futility of seeding these drastically changed soils to the then-available commercial grass varieties. Thinking next of kinds nature originally provided—kinds which have survived the extremes of drought, flood, and fire—they turned to Service nurseries for seed supplies of our native grasses. With only one native species, slender wheatgrass (*Agropyron trachycaulum*), having so far found the way into the seed trade, and with little precedent as to how to go about taming these wild forms, this was no simple task. The seeds of some of our finest native grasses, such as the bluestems, are so fluffy, others like the wildryes and needlegrasses so bearded and sharp-pointed, and still others like buffalograss borne so near the ground, they defied harvesting and planting by ordinary methods. To meet this emergency every nursery unit in our major native-grass areas concentrated upon working out the problem.

Enlisting the interest of other public and private agencies, the combined effort resulted finally in the development or adaptation of machines capable of handling satisfactorily even the most difficult seeds. A remarkable advance was finding that by adjustment and some major change the later makes of combines were generally suitable for harvesting purposes, handling with equal efficiency everything from the lowly buffalo-bur to the 6-foot bluestem plume. Another notable contribution was perfecting the use of the hammer mill for processing seeds. Removal in this manner of the feathery appendages and long awns, followed by recleaning, not only made sowing possible with regular farm equipment, but for the first time rendered such unruly seeds in condition to be handled by the trade.

Mastering the difficulties of harvesting and planting, however, was not the final answer to the domestication of our wild grasses. It took no expert to detect that seed from a particular site produced better grass than that from some other set of conditions. Nursery technicians, therefore, made use of the opportunity afforded by large-scale seed collection to note distinctive plant differentiations. Hundreds of these variants were collected. Placed under close observation in the nurseries, the naturally fixed, soil-conserving characteristics such as greater vegetative growth, large root systems, and better seed production, as expressed in individual or group plantings, became even more pronounced.

Continuing the evaluation process as previously described, superior geographic strain types of a number of our more important native grasses were isolated, named, and brought into conservation use. They are typified by such outstanding varieties as Sherman big bluegrass (*Poa ampla*), Bromar mountain brome (*Bromus marginatus*), Whitmar beardless wheatgrass (*Agropyron inerme*), Clatsop red fescue (*Festuca rubra*), Primar slender wheatgrass (*Agropyron trachycaulum*), Cucamonga brome (*Bromus carinatus*), Elreno and Vaughn side-oats gramas (*Bouteloua curtipendula*), Blackwell switchgrass (*Panicum virgatum*), and Mandan wild-rye (*Elymus canadensis*).

Examination of native stands revealed further that erosion combined with severe grazing had

taken its toll to the extent that some of our more palatable grasses were no longer available in collectible quantities. Notable examples were sand lovegrass (*Eragrostis trichodes*) in the central Great Plains, spike muhly (*Muhlenbergia wrighti*) in the Southwest, and purple needlegrass (*Stipa pulchra*) in California. From persistent remnant stands most of these old favorites likewise have been brought into the nurseries and increased to the point of availability.

Attributable directly to these studies, for the first time in the history of American agriculture the farmer now is able to turn to seed catalogs and, in addition to the varieties referred to above, find listed such valuable native grasses as big bluestem, little bluestem, sand bluestem, blue grama, slender grama, green stipagrass, buffalograss, western wheatgrass, beardless wheatgrass, bluebunch wheatgrass, yellow Indiangrass, Indian ricegrass, alkali sacaton, Texas wintergrass, and sand dropseed.

The remarkable success in domesticating native grasses prompted more recent effort to find untamed legumes for conservation use in our low-rainfall areas, a long recognized need. Nursery technicians have searched the mountains, foothills, and plains for suitable wild forms. Among those assembled in the nurseries are kinds sufficiently promising for the field-trial stage. American vetch (*Vicia americana*) and purple milkvetch (*Astragalus agrestis*), two deep-rooted, stoloniferous species which occur naturally in grasslands, illustrate the type of materials under observation.

The number and relative value of high-quality grasses and legumes of foreign origin brought into conservation use compare favorably with the native grasses domesticated. Some were obtained by seed exchange with technicians of foreign countries, others garnered as distinctive specimens from old fields and out-of-the-way places, and still others represent more common species whose conservation values had not been fully recognized and developed.

In some sections erosion induced by overgrazing or up-and-down-hill farming has so changed the soil and associated environment that even the native climax vegetation cannot, under prevailing conditions, be replaced. Such was the case on denuded range lands of the Southwest where repeated efforts to restore the original perennial grass cover met with failure. Through observational tests initiated on the nursery and completed on the problem area two good grasses from the dry veld of South Africa, Lehmann lovegrass (*Eragrostis lehmanniana*) and Boer lovegrass (*E. chloromelas*), finally were found that had the initial vigor and staying power to take over.

Finding a good grass for use in reclaiming the rocky, untillable Cedar Brake area of Texas posed a problem that was similarly solved. Here, following chopping down of the usurping juniper in a country so rough that the seed had to be scattered from horseback, King Ranch bluestem, a strain of *Andropogon ischaemum* from Asia, has taken hold and is continuing to spread by self-seeding. Deep-rooted and aggressive, it subdues weedy species and produces heavy ground cover and forage under the most adverse conditions.

Observational trials likewise have revealed that tall wheatgrass (*Agropyron elongatum*), also an immigrant from Asia, is especially suited to wet, alkaline soils. As such, it is filling an important place in providing productive cover for salty lands in the Midwest. Further, these studies have brought to light three other Asiatic grasses, Manchar smooth brome (*Bromus inermis*), and strains of intermediate wheatgrass (*Agropyron intermedium*) and sheep fescue (*Festuca ovina*), well suited to the critical erosion problem area of the Palouse in the Northwest. Falling in the same category is Hardinggrass (*Phalaris tuberosus* var. *stenoptera*) from the Mediterranean region which has been found especially adapted to conservation use in the winter rainfall belt of California.

Turning less specifically to the East, where few good native grasses and legumes exist, we must look almost entirely to foreign sources for close-growing, soil-conserving species. Through observational tests in this section, several heretofore overlooked exotic grasses and legumes have been brought into conservation use, including Pensacola and Wilmington Bahiagrasses (*Paspalum notatum*) and blanket indigo (*Indigofera pilosa*). In addition, re-evaluation of the more common species for soil conservation has greatly extended the use of valuable varieties such as Kentucky 31 fescue, coastal Bermuda-grass, rescuegrass, Ladino clover, Caley-pea, blue lupine, hairy indigo, and self-seeding crimson clover together with sericea, annual, and bicolor lespedezas, and kudzu found especially suitable for protecting and rebuilding worn-out soils in the South.

Other introduced grasses of major importance brought into conservation use include weeping lovegrass, Wilman lovegrass, Fischer and Elsberry smooth bromes, Russian wildrye, pubescent wheatgrass, and blue panicum, none of which were available to farmers prior to initiation of these studies.

Likewise brought into conservation use for the first time are many specifically adapted woody species, exemplified by: stoloniferous, dense-growing coyote willow (*Salix exigua*) for stabilizing stream and pond banks; drought-enduring Africa wild olive (*Olea verrucosa*) and bladdersenna (*Colutea arborescens*) for dry-situation windbreaks; vigorous, straight-trunked black locust (*Robinia pseudoacacia*) for farm fence posts; big-berried American holly (*Ilex opaca*), tart-fruited mulberry (*Morus alba*), and disease-resistant Japanese raspberry (*Rubus parvifolius*) as supplemental cash crops on steep hillsides; dual purpose multiflora rose (*Rosa multiflora*) for living fence and wildlife cover; and cold-hardy, early-maturing bicolor lespedeza (*Lespedeza bicolor* var. Natob) that extends much farther north the range of this important game-food species.

Operating over a period of 15 years, nursery observational studies are making profound contributions to our national soil and water conservation program and agriculture generally. In contrast to earlier effort before the results of these studies became effective, Soil Conservation Service nurseries now are able to grow the highest quality, specifically applicable planting materials. Supplementing on-the-nursery production, seed stock is made available to soil conservation districts for further increase and use. In many cases the seed from the nurseries is foundation seed stock from which the grower produces certified seed. Constantly multiplied and applied to the land, these superior varieties mean more soil held in place and improved, more and better pastures, higher crop yields, and greater farm income.

OIL COMPANIES FIND ANSWERS TO SALT-WATER PROBLEM

By WALTER F. EDMUNDSON

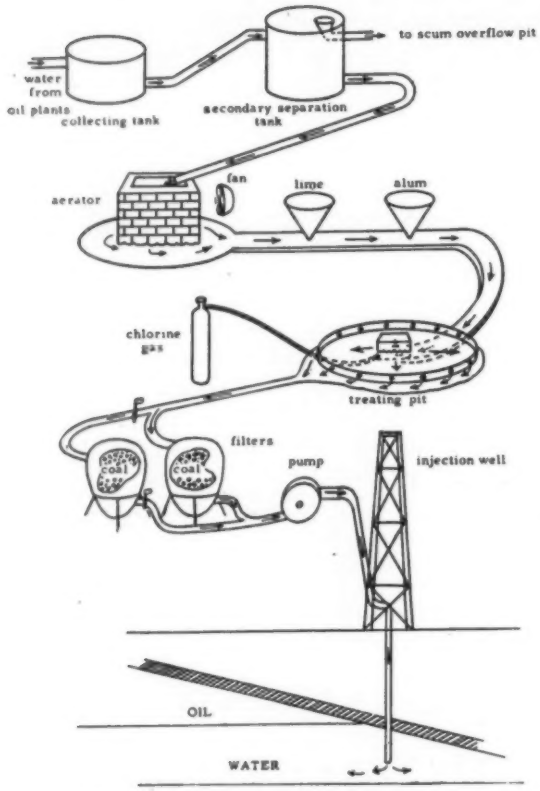
A RECENT investigation of skin hazards was made among workers in the salt-water disposal systems in the east-Texas oil fields. Although the investigation revealed no definite skin hazard in handling the salt water, the operation of these systems was extremely interesting from the viewpoint of the public-health worker. These systems were operated by a company organized as a public utility by some of the oil companies working this field.

Before these systems were in operation, salt water pumped from the field in mixture with oil was separated from the oil and disposed of by dumping the salt water into the nearby streams or on the land. As a result, there was considerable damage done by this water. The vegetation and aquatic life were killed and the streams were rendered unfit for domestic or industrial use. The water also formed reservoirs of brackish water which encouraged mosquito breeding.

For the last 8 years the practice of injecting the salt water back into the ground below the oil level, after appropriate treatment, has operated. This operation has, of course, solved the problem of

Salt-water damage as seen in east-Texas oil fields near Kilgore.

Note.—The author is surgeon, dermatologist, division of industrial hygiene, Public Health Service, Federal Security Agency, Washington, D. C.



Composite salt-water disposal system.

land and stream contamination, as well as served a useful purpose to the oil companies.

Before salt-water injection systems operated, there was a continual loss of pressure in the oil field and increased pumping pressures were required, since, with the extraction of oil, water, and gas from the ground, less pressure was exerted. With injection of the water below the oil pool, the pressure in the field has remained almost constant, with little or no reduction in pressure in the last 8 years.

There are about 23,000 operating oil wells in this field, with 40 salt-water injection systems servicing the great majority of the wells. Each system injects from 3,500 to 40,000 barrels of salt water daily. The purpose of treating the water is to separate further the oil from the water, to cool the water, to flocculate and filter out iron salts and extraneous nitrogenous matter, and to inhibit the scum-forming salt-water bacteria which quickly contaminate it. This procedure allows the injection of relatively scum-free water into the sand which does not quickly plug the porous sand, thus avoiding the necessity of costly cleaning operations of the sand or the drilling of another injection well.

PRESS AND RADIO

(Continued from page 198)

becoming more and more apparent as the contest continues.

During the first contest in 1948, most businessmen of the State showed little interest in whether or not the district in their locality took part in the event. In 1950, however, businessmen were as keenly anxious that the local district win as were the supervisors.

This year, businessmen in the territory of the five victorious districts were active in helping to arrange and manage recognition banquets at which the awards were made. It was my pleasure to attend the award dinner for the Sedgwick County Soil Conservation District, which placed first in the contest. Businessmen from the entire county took great interest in the event. The award dinner for the East Routt Soil Conservation District was termed by the editor of the *Steamboat Pilot* "the greatest recognition ever brought to Routt County."

The contest also is bringing to the attention of everyone the fact that there is a tremendous need for soil conservation in Colorado, and that something is being done about it on a sound and economical basis.

Furthermore, the year-around contest publicity is proving highly beneficial to the conservation program. Conservation practices, and what they mean in maintaining production, are stressed by press and radio. Outstanding work of individual farmers and ranchers which otherwise might go unobserved is spotlighted.

The contest invokes the interest and cooperation of organized groups such as service clubs, lodges, chambers of commerce, technical and professional organizations, and numerous others.

In my opinion, the Denver Post-KLZ soil conservation contest is unique and outstanding and well worth emulating in other conservation-minded communities.

BOMB SHELTERS

(Continued from page 197)

These results showed that for complete protection of the soil, about 5,000 pounds of cover per acre is required. This amount provides on the average of 98-percent effectiveness in controlling splash. This total cover includes both forage and litter—everything above the soil surface to stand in the way of a falling raindrop. Amounts in excess of this were found on nearly every site, and examples of 99-percent and 100-percent effectiveness were not uncommon.

Soil splash increases rapidly as the amount of cover on the range decreases below 3,000 pounds per acre. This amount is about 95-percent effective. It would permit enough of the drops of the test to reach the ground to dislodge the equivalent of about 3 tons per acre of the standard sand. *On most range soils, splash would be less than 2 tons per acre with 3,000 pounds of cover present.*

In smaller amounts cover rapidly loses its sheltering effect. Average effectiveness of 2,000 pounds per acre is about 90 percent. Below this point, its value declines in an almost straight-line relationship to the zero point.

Of course, soil splash alone does not mean that the soil is forever lost from the spot. Removal of the detached particles depends upon another step in the erosion process, transportation, which is dependent mainly on surface flow.

Soil splash is damaging to the land in other ways besides bodily removal of the soil splashed into the runoff waters. *Even if the dislodged particles are not carried away in the runoff, the churning of the soil in the water on the surface increases the amount of soluble and colloidal materials contained in the runoff.* Once in solution, no matter how slowly the excess water moves off, much of these vital materials are carried away.

The beating of the drops compacts the soft dispersed soil particles on the surface and creates smaller pores so that the land is sealed against the entry of water. This effect of raindrop splash contributes additional water to the runoff available to transport the loose material and complete the erosion process.

Comparison of water losses from plots with different amounts and kinds of cover reveals the relationship of this process to soil splash and to the related cover and soil conditions. On every site tested, excepting two very shallow soil profiles, one or more plots with the best cover absorbed virtually all of the 2 inches of water applied in 20 minutes. *Yet, on all sites, water losses usually exceeded 60 percent of the applied amounts when effectiveness of the cover was less than 40 percent.*

How soil splash and water losses go hand in hand with cover conditions is illustrated by results from one site summarized in the table below. Results from 18 plots on a deep, fine-textured, slowly permeable soil of the Edwards Plateau near San Angelo, Tex., are grouped and averaged by the range-condition class of the cover and compared to the plot with maximum cover.

Soil Splash and Water Loss from Edwards Plateau Deep Upland, Averaged by Range-Condition Classes

Range-condition class[1]	Number of plots	Total cover per acre	Effectiveness of cover	Water applied 20 min.	Water lost from plot
	Number	*Pounds*	*Percent*	*Inches*	*Percent*
Best plot	1	8,378	99	2.18	0
Good	6	4,569	87	1.98	30
Fair	3	2,131	83	1.91	48
Poor	7	697	55	2.01	65
Bare plots[2]	2			2.13	46

[1]No examples of excellent-condition range were tested on this site.
[2]One in fair-condition range and one in poor-condition.

Many variable factors, some of them still poorly understood, may influence the exact amount of soil splash which could safely be tolerated on different soils and slopes. If these were known, the cover could be tailored to the exact requirements in each case to prevent soil and water losses.

Until these are learned, however, the cover evaluations in Texas point to a safe general standard for ranges of that area. By maintaining 3,000 pounds of forage and litter per acre, soil splash will be held to a negligible level. The erosion process will be stopped before it starts. The land will be truly provided with shelter from the blasting action of bomb-like raindrops.

IMPROVED GAME.—A "Soil Golf Tournament" was recently sponsored by the Loup City, Nebr., Chamber of Commerce and the Nebraska Conservation Foundation. Among participants were FFA and 4-H Club members. An 18-hole, 2-mile course was played. Holes were dug to reveal soil profiles, permit feeling of samples. Each player had a score card. The best jobs of classification and suggesting cropping systems and conservation practices were rewarded by ribbons and team plaques.

DISTRICTS AND NATIONAL DEFENSE

(Continued from page 203)

other materials. The less we use of these to produce the food and fiber our Nation needs, the more manpower and other resources we have for the manufacture of instruments of war, upon which may someday depend our very lives.

Too often we are prone to estimate our Nation's strength merely by the number of men we have in our armed forces, the number of planes, battleships, and guns we have on the firing line. Our actual strength, however, is based as well on the productive capacity of each acre of land and the ability of our farmers to use that land safely and efficiently. It therefore becomes a problem of national import that, as we prepare ourselves for the defense of our Nation, we not overlook the necessity to guide the American farmer and rancher so that he can practice effective conservation farming which is the base of efficiency in agriculture.

None of us knows how long this period of full mobilization may be—whether for five, ten, or for how many years. But we do know that we must move ahead with greater speed toward the completion of this basic conservation job. We cannot permit our land resources to be dissipated unnecessarily during this period of all-out production. When peace is restored, our land must still be capable of producing sufficiently for our people. If we fail to protect the productivity of our land, our victory will be but half complete.

Using each acre of land for the purpose it is best suited is just as important, if not more so, than having the proper piece of equipment on the farm, or having the best seed for the crops we want to produce. Likewise, the employment of those soil- and water-conserving practices each acre needs is of vital importance to our agricultural economy.

Conservation farming, therefore, must not take a back seat as we gear our operations for all-out mobilization. If anything, I would feel a lot safer if we accelerated our efforts toward conservation farming. And I say that not necessarily as a matter of personal choice, but as common-sense logic.

You as district supervisors, therefore, face a great challenge as you gear your own district operations to meet your responsibilities in mobilization. One of the first jobs to be done is for you and others in your soil conservation districts to strengthen your work programs for the defense effort.

You will need to place greater emphasis on those activities which will get the basic conservation job done as soon as possible—and cut out those activities which become of secondary importance during this emergency period.

If I may suggest, I believe your first priority of work should apply to insuring that all farmers and ranchers know the best use they can make of their land and the major conservation practices each acre needs. But in speeding this work let us not substitute guess-work for accuracy. This soil conservation district assistance must be as accurate as it is possible for us to achieve. I also believe that you should set a time limit in which to get the basic job of conservation farming established on every farm or ranch in your district. Call together all of the farmers and ranchers of your district and mobilize everyone to get this job finished in as short a time as possible. Once it is done, we can then concentrate on the follow-up program which will be necessary to achieve complete soil and water conservation.

None of us can forget that we all have a great deal in common. You are farmer-elected supervisors charged with the responsibility of conducting the affairs of your districts. All of us know what the districts are doing. I am also an elected supervisor, you might say, except my job as Chairman of the Senate Committee on Agriculture and Forestry is to formulate our whole Nation's agricultural plans and policies.

Our common objective demands that we work together, that we stand side by side in our fight for effective conservation, a healthy agriculture, and a free and democratic Nation. Only in that way will we be victorious and preserve our cherished way of life.

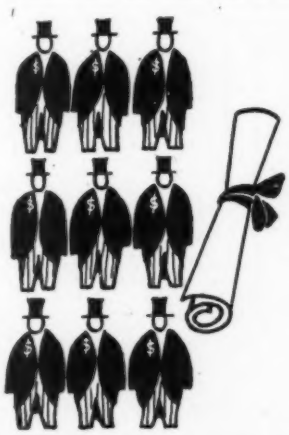
CROWDS ARE MADE UP OF CLUSTERS

(Continued from page 200)

those in attendance. Here, in the neighbor group, ideas are stripped of fancy trappings, discussed, analyzed, revised. Here is where conservation farmers or ranchers are born, where soil conservation becomes a part of the group's way of thinking and believing, and where it influences everyday actions.

During the past 5 years the Soil Conservation Service has worked to develop ways and means of learning to recognize and work with neighbor groups. The process was speeded up when a method was found by which the membership of such groups could be determined. Virtually all Service field employees have been trained in this process. Now they are gaining experience on how best to work with people in these natural groups, by carrying on many soil conservation activities in on-the-farm get-togethers with them. In 1950 technicians worked with some 24,000 neighbor groups with a membership of about 180,000 farmers or ranchers over the country as a whole. *Neighbor groups are in action!*

NOTES FROM THE DISTRICTS



RECOGNITION REVERSED.—The Georgia Association of Soil Conservation District Supervisors recently said "thanks" to bankers and others who signally helped its work during the past few years.

The appreciation was expressed in framed "certificates of award" to representatives of nine banks; to Alexander Nunn, managing editor of *Progressive Farmer;* Elmo Hester, former farm editor of the *Atlanta Journal* and now on active duty with the Army; the Georgia Press Association; and the Georgia Bankers Association.

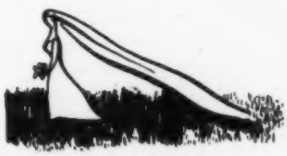
Banks receiving the certificates were the Bank of Soperton, the Citizens National Bank of Quitman, the National Bank of Fitzgerald, the Peoples Bank of Carrollton, the East Atlanta Bank, the First National Bank and Trust Company of Macon, the Commercial National Bank of Cedartown, the First National Bank of Waycross, and Etowah Bank of Canton.

W. F. Hall (left) hands award to M. A. Thompson, president of the East Atlanta Bank.

Presented by W. F. Hall, retiring president of the association, the certificates commended the banks for their efforts in behalf of soil conservation districts and "for extending credit to facilitate the application of soil and water conservation plans, based on proper land use and treatment." This work by the banks, it was stated in the certificates, "contributes to the well-being of our people and strengthens our State and Nation both today and for years to come."

"As far as we know, this is the first time district supervisors have presented certificates of award to bankers," said Hall. "Our Georgia banks, and those in several other States, have been presenting certificates of merit to outstanding district cooperators for a good many years."

The banks receiving the certificates were nominated by the Georgia Bankers Association.



SOCIETY NOTE.—"The bride had a carpet of green to walk on. When Clair Council returned from her wedding yesterday to William Zorn she trailed her veil across the only green grass in Ware County.

"You would just know that her father, Ware soil conservationist, J. C. Council would have a show window garden. The lawn of their beautiful new home on Cherokee Drive is an oasis of green grass amidst deserts of dead grass."—from the Waycross (Ga.) *Journal-Herald.*


Outstanding

Conservation Farmer Award

PRESENTED BY THE

Kennebec County Soil Conservation District

TO

Carl Lundgren, Belgrade, Maine

"A PROGRESSIVE FARMER WHO PLANS, WORKS AND STUDIES"

In recognition of being selected as the Outstanding Conservation Farmer in Kennebec County for the year 1950.

This selection is made after personal observation and careful examination of individual records and accomplishments. It is an award of honor given only to those who are Conservation Farmers.

Kennebec County Soil Conservation District — Approved: November 17, 1950

District Supervisors:

CYRILLE CORSTEN

RAYMOND HALL

GEORGE LITTLEFIELD

CLYDE GETCHELL

ROY PALMER

Chairman

Secretary

Board of District Supervisors

Gardiner, Maine

TOP MAN TABBED.—Each of three districts in Maine recognizes its top conservation farmer of the year by a certificate designated an "Outstanding Farmer Award."

The award, presented at the annual meeting, started with the Androscoggin Valley in 1949. The idea was picked up and adopted for 1950 by the Kennebec County district and the Waldo County district.

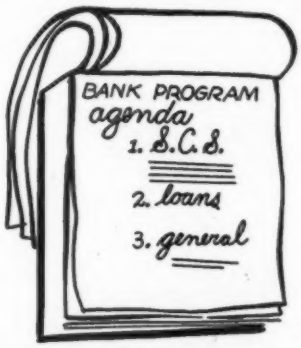
NEW SEEDING DEVICE.—Two years ago many central-Texas farmers were having trouble with heaving and freezing of small grains and clover. The clover needed a nurse crop planted at the same time and both needed fertilizer. The clover needed to be planted at ½-inch depth while the oats nurse crop and the phosphate needed to be one or more inches deep.

Thanks to Ben R. Day, of the Goldthwaite headquarters of the Soil Conservation Service, the farmers in the Brown-Mills Soil Conservation District now have drills which will sow small grain and clover correctly and put out fertilizer in bands at the same time.


Ben R. Day shows how hose conducts seed part way back on chain. The furrow is partly filled before the clover seed drops.

Day bought enough garden hose to extend each clover spout 32 inches. The spout fitted snugly into the rubber hose and the hose was passed under the drill boxes. In order to hold the hose securely behind each disk opener, a ⅞-inch hole was bored in a block of wood 1 inch by 2 inches by 10 inches, and the hose was forced through this hole.

The block of wood was then attached underneath the footboard on the drill directly behind each opener. The hose was then adjusted in its holder so that the clover seed would fall in the same furrow with the small grain and fertilizer, but after the drag chain had knocked some soil back in the furrow. The drag chain then would cover the clover seed to the proper depth.



COUNTRY BANK PLANS.—"Soil conservation has a major position in the programs of all state bankers associations," says a brochure issued by the Agricultural Commission of the American Bankers Association. The commission will emphasize the following four projects during the current year—

1. Encourage the development of a sound conservation plan for every farm and ranch in the Nation. A copy of the farm plan should be made available to banks and become a part of the farmer's credit file.
2. Develop a credit program to support financially soil improvement practices.
3. Work up a plan of credit to assist farmers in certain areas to change from one-crop agricultural production to that of diversification.
4. Have every State appraise its idle acres—and develop a plan of productive use for them in pastures or timber.

The committee in charge of this field of work is as follows: Hubert P. Burdette, Mount Airy, Md., chairman; E. E. Bailey, Princeton, W. Va.; Darryl R. Francis, Memphis, Tenn.; J. R. Kenner, Hebron, Nebr.; Herbert H. Pye, DeRidder, La.; and Dr. Lippert S. Ellis, Fayetteville, Ark.

1951 HEADLINE EVENT TO MISSOURI.—The National Soil Conservation Field Days and Plowing Matches will be held near Bethany, Mo., on August 16 and 17, 1951. The first day is designated for State contests, with the second reserved for National events. To handle the tremendous program a board of directors has been set up with representation from farm organizations; civic, church, and youth groups; implement dealers; bankers; and agricultural agencies.

The events will take place 10 miles south of Bethany, on U. S. Highway 69, on 1,000 acres belonging to George Montgomery, Emil Salmon, Glen Maize, Jewell Maize, Olin Youngs, Henry Everly, and Bob Crabtree.

Among the high lights listed as in prospect are the following—

Conservation demonstrations and test plots including most phases of modern agriculture.

Champion plowmen from throughout the Middle West will compete in level-land and contour plowing.

Livestock demonstrations and exhibits.

Farm building, fence and lot arrangements.

Farm machinery and mechanical labor-saving devices of all kinds.

Lime and fertilizer demonstrations.

Pasture and livestock feeding demonstrations.

New methods of handling hay, and grass and legume ensilage.

Forty acres commercial exhibits, displays, and food concessions.

Tractor rodeo.

Heavy earth-moving machinery will be in operation.

Six large parking areas—200 acres of bluegrass pasture.

Landing field for Flying Farmers.

Wagon tour to neighboring conservation farms.

Harrison County has been a pioneer in the adoption of conservation farming since the establishment of a soil erosion experiment station near Bethany in 1929. This was followed by the organization of a soil conservation watershed demonstration area in 1933. The first soil district in Missouri was voted by Harrison County landowners in 1944.

Missouri is proud to be host to the 1951 match. It plans to equal the high standards set in Iowa and Ohio. Attendance at the 1950 match in Ohio exceeded 60,000.

The use of a green-manure crop practically doubled corn yield for C. P. Bryant, Las Animas, Colo.

GREEN MANURE DOUBLED YIELD.—The use of a green-manure crop has practically doubled the corn yield on his farm east of here, according to C. P. Bryant, president of the Bent (Colo.) Soil Conservation District.

On May 4, 1950, Bryant planted hybrid corn on two fields of his 90-acre irrigated farm. Soils of both fields are clay loam. Throughout the growing season, the two fields were cultivated in the same way and irrigated at the same time. The only difference was that one field had a sweetclover crop turned under as green manure the previous fall.

At harvest last fall Bryant found that the field on which the clover had been turned under yielded 70 to 75 bushels per acre, while the untreated field produced only 35 to 40 bushels.

Bryant also reports that yields from his entire farm have been practically doubled since he purchased the land in 1941. He attributes much of his success to the use of soil and water conservation practices. He was the first cooperator of his district when it was organized in 1942.

BACK COVER.—Sherman Sigler, photographer for the *Sterling* (*Colo.*) *Advocate* is responsible for making this fine view of portions of several farms near Highway No. 6, west of Fleming, in the South Platte Soil Conservation District in northeastern Colorado. The pattern show alternate rows of small grain stubble and others processed by blank listing.

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